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OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 40.1143 Seconds
(without alignments)
1215.770 Million cell updates/sec

Title: US-09-807-933B-3

Perfect score: 2020
Sequence: 1 MKFRTTSALALALGTEM.....TYKEVCPKEIKAKTCSRK 366

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :
A. Geneseq. 101002.*
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3: /SIDS2/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.*
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22: /SIDS2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.*
23: /SIDS2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	2020	100.0	366	21	Endoglucanase prot
2	2020	100.0	366	23	Rhizopus arrhizus
3	2020	100.0	366	23	R. oryzae CP96001
4	1612	79.8	338	21	Endoglucanase prot
5	1612	79.8	338	23	Rhizopus arrhizus
6	1612	79.8	338	23	R. oryzae CP96001
7	1363.5	67.5	387	21	Endoglucanase prot
8	1363.5	67.5	387	23	Rhizopus arrhizus
9	1363.5	67.5	387	23	M. circinelloides
10	1332	65.9	360	21	Endoglucanase prot

11	1332	65.9	360	23	AAO15054
12	1332	65.9	360	23	ABO8062
13	1231.5	61.0	245	23	AAO15063
14	1202	59.5	338	21	ABO9824
15	1202	59.5	338	23	AAO15055
16	1202	59.5	338	23	ABO8063
17	1146	56.7	346	21	AAO15062
18	1069	52.9	346	21	ABO9826
19	1069	52.9	346	23	AAO15057
20	1069	52.9	346	23	ABO8065
21	757.5	37.5	225	21	AA184798
22	757.5	37.5	225	22	ABO5057
23	757.5	37.5	225	17	AAW04928
24	757.5	37.5	225	19	AAW04925
25	753.5	37.3	297	17	AAW04933
26	753.5	37.3	308	17	AAW04934
27	753.5	37.3	306	19	AAW44270
28	750.5	37.2	200	19	AAW53979
29	750.5	37.1	204	19	AAW53970
30	748.5	36.8	200	19	AAW53968
31	742.5	36.7	200	19	AAW53967
32	741.5	36.7	200	19	AAW53967
33	732	36.2	223	23	AAO15070
34	732	36.2	223	23	AAO80602
35	722.5	35.8	202	19	AAW53972
36	722.5	35.8	222	17	AAW04929
37	722.5	35.8	294	17	AAW04937
38	715	35.4	349	17	AAW04927
39	707.5	35.0	304	19	AAW44272
40	706.5	35.0	306	19	AAW44269
41	706	35.0	310	17	AAW04931
42	698	34.6	201	19	AAW53966
43	692	34.3	307	19	AAW44273
44	690.5	34.2	225	18	AAW16542
45	684	33.9	286	19	AAW57420

ALIGNMENTS

RESULT 1	AAO9822 standard; Protein; 366 AA.
AAO9822	
ID	AAO9822 standard; Protein; 366 AA.
XX	
AC	AAO9822;
XX	
DT	25-SEP-2000 (first entry)
XX	
DE	Endoglucanase protein sequence 2.
XX	
KW	Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW	animal foodstuff.
XX	
OS	Rhizopus oryzae.
XX	
PN	WO200024879-A1.
XX	
PD	04-MAY-2000.
XX	
PF	25-OCT-1999; 99WO-JP05884.
XX	
PR	23-OCT-1998; 98UP-0302387.
XX	
PA	(MEIT) MEIT SEIKA KAISHA LTD.
XX	
PI	Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI	Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX	
DR	WPI; 2000-365117/31.
DR	N-PSDB; AAA62727.
XX	
PT	Endoglucanases of fungal origin with high activity under alkaline conditions for production of paper pulp and animal feedstuffs -

XX Claim 44; Page 110-113; 180pp; Japanese.

CC This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AA09825-B09930), endoglucanase nucleotide sequences (see
CC AA62726-A62732), and primers (AA62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal foodstuffs.

XX Sequence 366 AA;

Query Match 100.0%; Score 2020; DB 21; Length 366;
Best Local Similarity 100.0%; Pred. No. 9:4e-132;
Matches 366; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC 60
DB 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC 60
QY 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC LAPESNGNKTSES 120
DB 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC LAPESNGNKTSES 120
QY 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGMPGKA 180
DB 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGMPGKA 180
QY 181 NVSSPVKSCNKDGVTLSDSNVSGCGNGSNYMCNDNQPWAVNDNLAYGFAAAASGGGE 240
DB 181 NVSSPVKSCNKDGVTLSDSNVSGCGNGSNYMCNDNQPWAVNDNLAYGFAAAASGGGE 240
QY 241 SRWCCSCFELFTSTSVAGKRWIIOVNTNGDLGSSGTGAHFDLOMPGGGVI FNGCSKQW 300
DB 241 SRWCCSCFELFTSTSVAGKRWIIOVNTNGDLGSSGTGAHFDLOMPGGGVI FNGCSKQW 300
QY 301 GAPNDGWSRYGGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
DB 301 GAPNDGWSRYGGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
QY 361 TGCSRK 366
DB 361 TGCSRK 366

RESULT 2
AA015053
ID AA015053 standard; Protein; 366 AA.

XX AA015053;

DT 22-AUG-2002 (first entry)

XX Rhizopus arrhizus endoglucanase-related protein 2.

KW Zygomycetes-originated endoglucanase; cellulose binding domain;
XX fibre processing; waste paper de-inking; paper pulp.

OS Rhizopus arrhizus.

XX WO200242474-A1.

XX 30-MAY-2002.

PF 21-NOV-2001; 2001WO-JP10188.

PR 21-NOV-2000; 2000JP-0354296.

PA (MEIJ) MEIJ SEIKA KAISHA LTD.

PI Nakane A, Baba Y, Koga J, Kubota H;

DR WPI; 2002-471729/50.

XX N-PSDB; AAL43245.

PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
CC with effect of endoglucanase activity enhanced in processing fibers,
CC deinking waste paper and improving freeness of paper pulp -
XX Claim 5; Page 58-60; 109pp; Japanese.

CC The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present amino acid sequence represents an endoglucanase-related
CC protein of the invention.

XX Sequence 366 AA;

Query Match 100.0%; Score 2020; DB 23; Length 366;
Best Local Similarity 100.0%; Pred. No. 9:4e-132;
Matches 366; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC 60
DB 1 MKFTITSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC 60
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DB 61 LAPESNGNKSSECSKLYGCGGKDMNGPTCCSGSTCKVSNNDYSSQC LAPESNGNKTSES 120
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DB 121 AHKTTTTPAKETITTTAKASNSNSGKYSIVSGASGNGVTTTRYWDCCKASGMPGKA 180
QY 181 NVSSPVKSCNKDGVTLSDSNVSGCGNGSNYMCNDNQPWAVNDNLAYGFAAAASGGGE 240
DB 181 NVSSPVKSCNKDGVTLSDSNVSGCGNGSNYMCNDNQPWAVNDNLAYGFAAAASGGGE 240
QY 241 SRWCCSCFELFTSTSVAGKRWIIOVNTNGDLGSSGTGAHFDLOMPGGGVI FNGCSKQW 300
DB 241 SRWCCSCFELFTSTSVAGKRWIIOVNTNGDLGSSGTGAHFDLOMPGGGVI FNGCSKQW 300
QY 301 GAPNDGWSRYGGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
DB 301 GAPNDGWSRYGGISSASDCSSLPALQAGCKRFFWFKNADNPMTYKEVTCPEKITAK 360
QY 361 TGCSRK 366
DB 361 TGCSRK 366

RESULT 3
ABB08061
ID ABB08061 standard; protein; 366 AA.

XX ABB08061;

DT 27-AUG-2002 (first entry)

XX R. oryzae Cp96001 RCEII protein.

KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
XX pulp treatment; RCEII.

OS Rhizopus oryzae.

FH Key . Location/Qualifiers
 FT Peptide 1..23 /note="signal peptide"
 FT Protein 24..366
 FT /note="mature protein"
 XX MO200238754-A1.
 XX PD 16-MAY-2002.
 PF 12-NOV-2001; 2001WO-JP09858.
 PR 10-NOV-2000; 2000JP-0343921.
 XX (MEIJ) MEIJI SEIKA KAISHA LTD.
 PA Koga J, Nakane A, Baba Y, Kono T;
 PI WPI; 2002-471555/50.
 DR Cellulase preparations containing transconjugant-originated
 XX endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and
 PT improving freeness of paper pulp.
 PS Claim 3; Page 23-24; 38pp; Japanese.
 CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001 RCEII protein.
 XX
 XX
 SQ Sequence 366 AA;
 Query Match 100.0%; Score 2020; DB 23; Length 366;
 Best Local Similarity 100.0%; Pred. No. 9.4e-132;
 Matches 366; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MKRITTTSSALLALALGTETMAAASAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
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 DB 61 LAPESNGNSSECSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQCLAPESNGNTSBS 120
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 DB 121 AKHTTTTAPAKETTTAKASNSNSGKYSIVSGASGNGVTRTWDCCKASCPGKA 180
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 DB 181 NVSSPVKSCNKDGVTALSDSNVSGCNGSNYMCNDNPWAVNDNLAYGPAAAIISGGGE 240
 QY 241 SRRCSCCFELTFTSTSVAGKKMVIQVNTGDLGSSGTAHFDLQMGGGVGINSGSKW 300
 DB 241 SRRCSCCFELTFTSTSVAGKKMVIQVNTGDLGSSGTAHFDLQMGGGVGINSGSKW 300
 QY 301 GARNDMGSRVYGISASDCSSLPALQAGCKRPMFKVADNPSTYKXVTCPEKITTAK 360
 DB 301 GARNDMGSRVYGISASDCSSLPALQAGCKRPMFKVADNPSTYKXVTCPEKITTAK 360
 QY 361 TGCSRK 366
 DB 361 TGCSRK 366

RESULT 4
 ID AAB09821
 ID AAB09821 standard; Protein; 338 AA.
 AC AAB09821;
 XX
 XX 25-SEP-2000 (first entry)
 DE Endoglucanase protein sequence 1.
 DE Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 XX animal foodstuff.
 XX Rhizopus oryzae.
 OS
 XX WO200024879-A1.
 PN 04-MAY-2000.
 PD 25-OCT-1999; 99WO-JP05884.
 PF 23-OCT-1998; 98JP-0302387.
 PR (MEIJ) MEIJI SEIKA KAISHA LTD.
 PA Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Muraashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 XX WPI; 2000-365117/31.
 DR N-PSDB; AAB62726.
 XX Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs.
 PS Claim 44; Page 106-108; 180pp; Japanese.
 CC This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal feedstuffs.
 XX
 XX
 SQ Sequence 338 AA;
 Query Match 79.8%; Score 1612; DB 21; Length 338;
 Best Local Similarity 80.6%; Pred. No. 1.3e-103;
 Matches 304; Conservative 9; Mismatches 14; Indels 50; Gaps 3;
 QY 1 MKRITTTSSALLALALGTETMAAASAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
 DB 1 MKRITTTSSALLALALGTETMAAASAKCSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQC 60
 QY 61 LAPESNGNSSECSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQCLAPESNGNTSBS 120
 DB 61 LAPESNGNSSECSKLYGCGGKDMNGPTCCESGSTCKVSNDDYSSQCLAPESNGNTSBS 120
 QY 121 AKHTTTTAPAKETTTAKASNSNSGKYSIVSGASGNGVTRTWDCCKASCPGKA 169
 DB 121 AKHTTTTAPAKETTTAKASNSNSGKYSIVSGASGNGVTRTWDCCKASCPGKA 169
 QY 170 CRASCSPGKAVSSPVKSCNKDGVTALSDSNVSGCNGSNYMCNDNPWAVNDNLAYG 229
 DB 170 CRASCSPGKAVSSPVKSCNKDGVTALSDSNVSGCNGSNYMCNDNPWAVNDNLAYG 229
 QY 230 FAAAAISGGESRWCCSCFELTFTSTSVAGKKMVIQVNTGDLGSSGTAHFDLQMPGGG 289
 DB 230 FAAAAISGGESRWCCSCFELTFTSTSVAGKKMVIQVNTGDLGSSGTAHFDLQMPGGG 289

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Db      202  FAAAAISGGGSEBRCSCFELTTSTSVAGKKNVQVNTGDLGSGTGAFHFLQMPGGG 261
Qy      290  VGIFNGCSKQWGA PNDGWSRGYGISASDCSSLPALQAGCKRPFNFKNADNPSMTYK 349
Db      262  VGIFNGCSQWGA PNDGWSRGYGISASDCSSLPALQAGCKRPFNFKNADNPSMTYK 321
Qy      350  EYTCPKEITAKTGCSRK 366
Db      322  EYTCPKEITAKTGCSRK 338

RESULT 5
AA015052
ID      AA015052 standard; Protein; 338 AA.
AC      AA015052;
XX      22-AUG-2002 (first entry)
DT      22-AUG-2002 (first entry)
DE      Rhizopus arrhizus endoglucanase-related protein 1.
KM      Zygomycetes-originated endoglucanase; cellulose binding domain;
XX      fibre processing; waste paper de-inking; paper pulp.
OS      Rhizopus arrhizus.
XX      WO200242474-A1.
XX      30-MAY-2002.
XX      21-NOV-2001; 2001WO-JP10168.
XX      21-NOV-2000; 2000JP-0354296.
XX      (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX      Nakane A, Baba Y, Koga J, Kubota H;
XX      WPI; 2002-471729/50.
XX      N-PSDB; AAL43244, AAL43250.
XX      Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT      with effect of endoglucanase activity enhanced in processing fibers,
PT      deinking waste paper and improving freeness of paper pulp.
XX      Claim 5; Page 54-55; 109pp; Japanese.
XX      The invention comprises the amino acid and coding sequences of
CC      zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC      binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC      invention have enhanced endoglucanase activity. The zygomycetes-
CC      originated endoglucanase enzymes of the invention are useful for
CC      processing fibres, de-inking waste paper and improving the freeness of
CC      paper pulp - which is particularly applicable in detergent compositions.
CC      The present amino acid sequence represents an endoglucanase-related
XX      protein of the invention.
XX      Sequence 338 AA;
SQ
Query Match      79.8%; Score 1612; DB 23; Length 338;
Best Local Similarity 80.6%; Pred. No. 1.3e-103;
Matches 304; Conservative 9; Mismatches 11; Indels 50; Gaps 3;
Qy      1  MKFITTSQALLALGTEMASAKCSKLYGCGGKDMNGPTCCSGSTCKVSN DYSGC 60
Db      1  MKFITASALLALGTEMASAAEC SKLYGCGGKDMNGPTCCSGSTCKVSN DYSGC 60
Qy      61  LAPBENKMSKRCSTLYGCGGKDMNGPTCCSGSTCKVSN DYSGCLAPBENKMSKTS 120
Db      61  LPSGSGSKMS-----SSAHKKTYYA 81
Qy      121 AHKT-----TTAPAKEITTTAKAS-----NSSNSGKYIVGSGASGNGVTRRYWDC 169

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Db      82  AHKTTTAHKKTTTAPAKKTTTAKASTPNSSSSSSGKYSAVGASGNGVTRRYWDC 141
Qy      170  CRAASGWPCKAVNSPVKSCNDGYTALSDSNVQGCNGNSYMCNDNDQPMVNNNLAYG 229
Db      142  CRAASGWPCKAVNSPVKSCNDGYTALSDSNVQGCNGNSYMCNDNDQPMVNNNLAYG 201
Qy      230  FAAAAISGGGSEBRCSCFELTFTSTSVAGKKNVQVNTGDLGSGTGAFHFLQMPGGG 289
Db      202  FAAAAISGGGSEBRCSCFELTFTSTSVAGKKNVQVNTGDLGSGTGAFHFLQMPGGG 261
Qy      290  VGIFNGCSKQWGA PNDGWSRGYGISASDCSSLPALQAGCKRPFNFKNADNPSMTYK 349
Db      262  VGIFNGCSQWGA PNDGWSRGYGISASDCSSLPALQAGCKRPFNFKNADNPSMTYK 321
Qy      350  EYTCPKEITAKTGCSRK 366
Db      322  EYTCPKEITAKTGCSRK 338

RESULT 6
ABB08060
ID      ABB08060 standard; protein; 338 AA.
AC      ABB08060;
XX      27-AUG-2002 (first entry)
DT      27-AUG-2002 (first entry)
DE      R. oryzae CP96001 RCEI protein.
XX      Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
KM      pulp treatment; RCEI.
XX      Rhizopus oryzae.
XX      Key Location/Qualifiers
FH      1..23
FT      Peptide /note= "signal peptide"
FT      Protein 24..338
FT      /note= "mature protein"
XX      WO200238754-A1.
XX      16-MAY-2002.
XX      12-NOV-2001; 2001WO-JP09858.
XX      10-NOV-2000; 2000JP-0343921.
XX      (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX      Koga J, Nakane A, Baba Y, Kono T;
XX      WPI; 2002-471555/50.
XX      Cellulase preparations containing transconjugant-originated
PT      endoglucanase and non-ionic surfactants, useful in detergent
PT      compositions, in treating cellulose fibers and deinking waste paper and
PT      improving freeness of paper pulp.
XX      Claim 3; Page 21-22; 38pp; Japanese.
XX      The invention relates to a cellulase preparation comprising a
XX      transconjugant-originated endoglucanase and a non-ionic surfactant. The
XX      endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCEI
XX      proteins. The preparations are useful in detergent compositions, in
XX      treating cellulose fibers and deinking waste paper and improving the
XX      freeness of paper pulp. The fibers treated by the preparations have
XX      reduced feathering and improved skin-feel and appearance with colour
XX      clarification, local change in colour and softening, and after deinking
XX      and paper pulp treatment, there is an improvement on freeness of the
XX      paper pulp. This treatment with the cellulase preparation can be operated
XX      at significantly lower cost. The present sequence represents the

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CC R. oryzae CP96001 RCE1 protein.
XX
SQ Sequence 338 AA;

Query Match 79.8%; Score 1612; DB 23; Length 338;
Best Local Similarity 80.6%; Pred. No. 1.3e-103;
Matches 304; Conservative 9; Mismatches 14; Indels 50; Gaps 3;

QY 1 MKFTTSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVNDYSSQC 60
DB 1 MKFTTSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVNDYSSQC 60
QY 61 LAPESNGKSSSECKSLYGCGGKDMNGPTCCESGSTCKVNDYSSQCLAPESNGKTS 120
DB 61 LAPESNGKSSSECKSLYGCGGKDMNGPTCCESGSTCKVNDYSSQCLAPESNGKTS 120
QY 121 AKHTT-----TTTAPAKETTTAKAS-----NSSSSGKTSIVSGASGNGVTTTRYMD 169
DB 82 AKHTTTAAHKTTTTPAKKTTTAAKATPTPSNSSSSSGCYSAVSJGASGNGVTTTRYMD 141
QY 170 CRASGMPGKANVSPVKSCKNDGVTALSDSNVOSGNGGNSYMCNDNPMAYNDMLAYG 229
DB 142 CRASGMPGKANVSPVKSCKNDGVTALSDSNVOSGNGGNSYMCNDNPMAYNDMLAYG 201
QY 230 PAAAIISGGESRMCSCFELFTFTSTSVAGKKNVIOVTNTGDLGSSSTGAHPDLOMPGG 289
DB 202 PAAAIISGGESRMCSCFELFTFTSTSVAGKKNVIOVTNTGDLGSSSTGAHPDLOMPGG 261
QY 290 VGIENGCSQMGAPNDGMSRYGIGISASDSSLPSALOGCKWRNMFKNADNPMTYK 349
DB 262 VGIENGCSQMGAPNDGMSRYGIGISASDSSLPSALOGCKWRNMFKNADNPMTYK 321
QY 350 EYTCPEKITAKTGCSRK 366
DB 322 EYTCPEKITAKTGCSRK 338

RESULT 7

AAB09825
ID AAB09825 standard; Protein; 387 AA.

XX AAB09825;
XX
XX
XX 25-SBP-2000 (first entry)

DE Endoglucanase protein sequence 5.

KW Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW animal foodstuff.

OS Phycomyces nitens.

PN WO200024879-A1.

PD 04-MAY-2000.

PF 25-OCT-1999; 99WMO-JP05884.

PR 23-OCT-1998; 98UP-0302387.

PA (MEIJ) MEIJ SEIKA KAISHA LTD.

PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T,
Muraahima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;

DR WPI; 2000-365117/31.

DR N-PSDB; AAA62730.

PT Endoglucanases of fungal origin with high activity under alkaline
PT conditions for production of paper pulp and animal feedstuffs

XX Claim 44; Page 125-127; 180pp; Japanese.

CC This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/1litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AAB09825-B09830), endoglucanase nucleotide sequences (see
CC AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal foodstuffs.

XX
SQ Sequence 387 AA;

Query Match 67.5%; Score 1363.5; DB 21; Length 387;
Best Local Similarity 62.6%; Pred. No. 2.2e-86;
Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;

QY 1 MKFTTSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVNDYSSQC 58
DB 1 MKFTTSSALLALALGTEMASAAKCSKLYGCGGKDMNGPTCCESGSTCKVNDYSSQC 59
QY 59 QCLAPESNGKSSSECKSLYGCGGKDMNGPTCCESGSTCKVNDYSSQCLAPESNGKTS 112
DB 60 QCLAPESNGKSSSECKSLYGCGGKDMNGPTCCESGSTCKVNDYSSQCLAPESNGKTS 118
QY 113 --NGNTSSSAKHTTTTAPAKETTTAKASNSSSSGKTSIV 153
DB 119 AGAASSTKSTSTSTTAKATATVTTKTTTSTTAASTSTSSAGYKYI 178
QY 154 SCGASGNGVTTTRYMDCKASGMPGKANVSPVKSCKNDGVTALSDSNVOSGNGGNSY 213
DB 179 SCGASGNGVTTTRYMDCKASGMPGKANVSPVKSCKNDGVTALSDSNVOSGNGGNSY 237
QY 214 CNDNPMAYNDMLAYGFAAIAISGGESRMCSCFELFTFTSTSVAGKKNVIOVTNTGDL 273
DB 238 CNDNPMAYNDMLAYGFAAIAISGGESRMCSCFELFTFTSTSVAGKKNVIOVTNTGDL 297
QY 274 GSSSTGAHPDLOMPGGVGIENGCSQMGAPNDGMSRYGIGISASDSSLPSALOGCKWR 333
DB 298 GSN--HFDLOMPGGVGIENGCSQMGAPNDGMSRYGIGISASDSSLPSALOGCKWR 354
QY 334 RFWMFKNADNPMTYKEVTCPEKITAKTGCSRK 366
DB 355 RFWMFKNADNPMTYKEVTCPEKITAKTGCSRK 387

RESULT 8

AAO15056
ID AAO15056 standard; Protein; 387 AA.

XX AAO15056;
XX

DT 22-AUG-2002 (first entry)

DE Rhizopus arrhizus endoglucanase-related protein 5.

KW Zygomycetes-originated endoglucanase; cellulose binding domain;
KW fibre processing; waste paper de-inking; paper pulp.

OS Mucor circinelloides.

PN WO200242474-A1.

PD 30-MAY-2002.

PF 21-NOV-2001; 2001WMO-JP10188.

PR 21-NOV-2000; 2000UP-0354296.

PA (MEIJ) MEIJ SEIKA KAISHA LTD.

PI Nakane A, Baba Y, Koga J, Kubota H;

XX PF1; 2002-471729/50.
 DR N-PSDB; AAL43248.
 XX
 PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp
 XX
 PS Claim 5; Page 73-75; 109pp; Japanese.
 XX
 CC The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-linking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.
 CC
 XX Sequence 387 AA
 SQ
 Query Match 67.5%; Score 1363.5; DB 23; Length 387;
 Best Local Similarity 62.6%; Pred. No. 2.2e-86;
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;
 QY 1 MKFTITSSALMALALGTEMAASAKSKLYGCGGKDMNPTCCESGTCVSNDS--YYS 58
 DB 1 MKFTVAITISIAVALALSSS--AEAASCSVYGCGGIGMTGPTCCDAGSTCKAQKDKKYY 59
 QY 59 QCLAPESNGKSKSECSKLYGCGGKDMNPTCCESGTC--KYSNDYYSOCLAPES---- 112
 DB 60 QCLAPESNGKSKSECSKLYGCGGIGMTGPTCCESGTCVAGBNKYYSOCL--PGSHSN 118
 QY 113 --NGNKTSESAHKTITTTAP-----KEIT-----TTAKASNSNSGKYSIV 153
 DB 119 AGNASSTKSTKTSTTTAKATATVTTKTKTTTAKATATVTTTAAASTSTSSAGYKVI 178
 QY 154 SGGASGNGVTRRYWDCKKASGMPGKXNVSSPYKCNKDGVTALSDNVGCGNGNSYM 213
 DB 179 SGGKSGSGSTTRRYWDCKKASGMPGKASVTPVDTCAISNGISL--DANAOSGCGNGNGFM 237
 QY 214 CNDNQPAVNDNLAYGFAAAAIISGGGSRWCCSCELTFTSTSVAGKXNVIOVTNTGDL 273
 DB 238 CNDNQPAVNDNLAYGFAAASINAGSNENAGCCGCELTFTSAGASGKXNVIOVTNTGDL 297
 QY 274 GSSTGAHFDLQMPGGGVGIFNGCSKQWGAENDGMSRYGIISSASDCSSLPALQAGCKW 333
 DB 298 GSN---HFDLQMPGGGVGIFNGCAAOWGAENDGMSRYGIISSASDCSSLPALQAGCKW 354
 QY 334 RENNFKXADNPSMTYKEVTCPEKAITAKTGCSRK 366
 DB 355 RENNFKXADNPSMTYKEVTCPEKAITAKTGCSRK 387
 RESULT 9
 ABB08064
 ID ABB08064 standard; protein; 387 AA.
 XX
 AC ABB08064;
 XX
 DT 27-AUG-2002 (first entry)
 XX
 DE M. circinelloides CP99001 MCEII protein.
 XX
 KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KW pulp treatment; MCEII.
 XX
 OS Mucor circinelloides.
 XX
 FH Key Location/Qualifiers
 FT Peptide 1..22
 FT /note= "signal peptide"

FT Protein 23..387
 FT /note= "mature protein"
 XX
 PN MO200238754-A1.
 XX
 PD 16-MAY-2002.
 XX
 PF 12-NOV-2001; 2001WO-JP09858.
 XX
 PR 10-NOV-2000; 2000JP-0343921.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Koga J, Nakane A, Baba Y, Kono T;
 XX
 DR PF1; 2002-471555/50.
 XX
 CC Cellulase preparations containing transconjugant-originated
 CC endoglucanase and non-ionic surfactants, useful in detergent
 CC compositions, in treating cellulose fibers and deinking waste paper and
 CC improving freeness of paper pulp
 XX
 PS Claim 3; Page 29-31; 38pp; Japanese.
 XX
 CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, RCEIII, MCEII or PCEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC M. circinelloides CP99001 MCEII protein.
 CC
 XX Sequence 387 AA;
 SQ
 Query Match 67.5%; Score 1363.5; DB 23; Length 387;
 Best Local Similarity 62.6%; Pred. No. 2.2e-86;
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;
 QY 1 MKFTITSSALMALALGTEMAASAKSKLYGCGGKDMNPTCCESGTCVSNDS--YYS 58
 DB 1 MKFTVAITISIAVALALSSS--AEAASCSVYGCGGIGMTGPTCCDAGSTCKAQKDKKYY 59
 QY 59 QCLAPESNGKSKSECSKLYGCGGKDMNPTCCESGTC--KYSNDYYSOCLAPES---- 112
 DB 60 QCLAPESNGKSKSECSKLYGCGGIGMTGPTCCESGTCVAGBNKYYSOCL--PGSHSN 118
 QY 113 --NGNKTSESAHKTITTTAP-----KEIT-----TTAKASNSNSGKYSIV 153
 DB 119 AGNASSTKSTKTSTTTAKATATVTTKTKTTTAKATATVTTTAAASTSTSSAGYKVI 178
 QY 154 SGGASGNGVTRRYWDCKKASGMPGKXNVSSPYKCNKDGVTALSDNVGCGNGNSYM 213
 DB 179 SGGKSGSGSTTRRYWDCKKASGMPGKASVTPVDTCAISNGISL--DANAOSGCGNGNGFM 237
 QY 214 CNDNQPAVNDNLAYGFAAAAIISGGGSRWCCSCELTFTSTSVAGKXNVIOVTNTGDL 273
 DB 238 CNDNQPAVNDNLAYGFAAASINAGSNENAGCCGCELTFTSAGASGKXNVIOVTNTGDL 297
 QY 274 GSSTGAHFDLQMPGGGVGIFNGCSKQWGAENDGMSRYGIISSASDCSSLPALQAGCKW 333
 DB 298 GSN---HFDLQMPGGGVGIFNGCAAOWGAENDGMSRYGIISSASDCSSLPALQAGCKW 354
 QY 334 RENNFKXADNPSMTYKEVTCPEKAITAKTGCSRK 366
 DB 355 RENNFKXADNPSMTYKEVTCPEKAITAKTGCSRK 387
 RESULT 10

AAB09823
 ID AAB09823 standard; Protein; 360 AA.
 AC AAB09823;
 DT 25-SEP-2000 (first entry)
 DE Endoglucanase protein sequence 3.
 XX
 XX Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 KM animal foodstuff.
 XX
 OS Rhizopus oryzae.
 XX
 PN MO200024879-A1.
 XX
 PD 04-MAY-2000.
 XX
 PF 25-OCT-1999; 99MO-JP05884.
 XX
 PR 23-OCT-1998; 98JP-0302387.
 XX
 (MEIJ) SEIKA KAISHA LTD.
 PA Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T,
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 XX
 DR WPI; 2000-365117/31.
 DR N-PSDB; AAA62728.
 XX
 XX Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs -
 XX
 PS Claim 44; Page 115-117; 180pp; Japanese.
 CC This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/1litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09823-B09830), endoglucanase nucleotide sequences (see
 CC AAA62726-A62732) and primers (AAA62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.
 CC
 SQ Sequence 360 AA;
 Query Match 65.9%; Score 1332; DB 21; Length 360;
 Best Local Similarity 66.4%; Pred. No. 3.1e-84;
 Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;
 QY 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGSTC--KVSNDYYS 58
 DB 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGSTCVDYDPDPFYS 60
 QY 59 QCLAPF--SNGNKSSECSKLYGCGGKDMNGPTCCESGSTCKVSN DYSSQCLAPESNGNK 116
 DB 61 QCPVENLNLSTNKS-----HKTTTESAKKTTTKGSKTTTTEASKTT 106
 QY 117 TSESAAKTTTTPAPEITTTTAKASNSNSG-----KSIYSGGASGNGVTRRYWDCK 171
 DB 107 TTASAKTTTTEASKTTTTKKASTSTSSSSASASTNYSAVSGAGSNGETTRRYWDCK 166
 QY 172 ASGSMGKANVSPVSKCNKDVYALSDSNVSGCNGNSYMCNDNPMVAVNDNLAYGFA 231
 DB 167 PSCSMGKADVTSPVSGCNKDKT-LADNNTQNGCVGSSYTCNDNPMVVSDDLAYGFA 225
 QY 232 AAASISGGSERKCCSCCELTFTTSVAGKGVIOVYTTGDLGSSSTAAHDLQMPGGVG 231
 DB 226 AASISGGSERKCCSCCELTFTTSVAGKGVIOVYTTGDLGSSSTAAHDLQMPGGVG 285

QY 292 IFNGCSKQWGPANDGSGRYGSISSASDCSSLPALQACCKRFNNFKNADNPSMTYKEV 351
 DB 286 IYNGCATQWGPAPLDGARGAYGVSSASDCSNLPALQACCKRFNNFKNADNPSMTYKEV 345
 QY 352 TCPKEITTAATGCSRK 366
 DB 346 TCPKAITAKSGCSRK 360
 RESULT 11
 ID AAO15054 standard; Protein; 360 AA.
 AC AAO15054;
 XX
 DT 22-AUG-2002 (first entry)
 XX
 DE Rhizopus arrhizus endoglucanase-related protein 3.
 XX
 XX Zymomyces-originated endoglucanase; cellulose binding domain;
 KM fibre processing; waste paper de-inking; paper pulp.
 XX
 OS Rhizopus arrhizus.
 XX
 PN MO200242474-A1.
 XX
 PD 30-MAY-2002.
 XX
 PF 21-NOV-2001; 2001WO-JP10188.
 XX
 PR 21-NOV-2000; 2000JP-0354296.
 XX
 (MEIJ) SEIKA KAISHA LTD.
 PA Nakane A, Baba Y, Koga J, Kubota H;
 PI
 XX
 DR WPI; 2002-471729/50.
 DR N-PSDB; AAL43246.
 XX
 PT Cellulose-binding domain-lacking Zymomyces-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 XX deinking waste paper and improving freeness of paper pulp
 PS Claim 5; Page 63-65; 109pp; Japanese.
 CC The invention comprises the amino acid and coding sequences of
 CC zymomyces-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zymomyces-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zymomyces-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.
 CC
 SQ Sequence 360 AA;
 Query Match 65.9%; Score 1332; DB 23; Length 360;
 Best Local Similarity 66.4%; Pred. No. 3.1e-84;
 Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;
 QY 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGSTC--KVSNDYYS 58
 DB 1 MKETITSSALLALAGTETMAAASAKSKLYGCGGKDMNGPTCCESGSTCVDYDPDPFYS 60
 QY 59 QCLAPF--SNGNKSSECSKLYGCGGKDMNGPTCCESGSTCKVSN DYSSQCLAPESNGNK 116
 DB 61 QCPVENLNLSTNKS-----HKTTTESAKKTTTKGSKTTTTEASKTT 106
 QY 117 TSESAAKTTTTPAPEITTTTAKASNSNSG-----KSIYSGGASGNGVTRRYWDCK 171
 DB 107 TTASAKTTTTEASKTTTTKKASTSTSSSSASASTNYSAVSGAGSNGETTRRYWDCK 166

QY 172 ASCSWPGKAVSSPYKSCNKDVTALSDSNVQSGCNGNSYMCNDNQPMVAVNDNLAYGFA 231
 DB 167 PSCSWPGKADVTSTVSGCNKDGKT-LADNNTQNGCVGSSSTYCNQPMVAVSDDLAYGFA 225
 QY 232 AAASGGSESRWCCSCFELTFTSTVAGKKMVIQVNTGDLGSSSTGAHFDLQMPGGGVG 291
 DB 226 AAASGGSEATWCCACFELTFTSTVAGKKMVIQVNTGDLGSSSTGAHFDLQMPGGGVG 285
 QY 292 IFNGGSKQWGPNDGMSRGYGISASDSSLPALQAGCKMRFNFKADNPSTMYKEV 351
 DB 286 IYNGCATQMGAPTDGMAFYGVSSASDSSNLPALQAGCKMRFNFKADNPSTMYKQV 345
 QY 352 TCPKEITAKTGCSRK 366
 DB 346 TCPKAITAKSGCSRK 360

RESULT 12
 ABB08062
 ID ABB08062 standard; protein; 360 AA.
 AC ABB08062;
 DT 27-AUG-2002 (first entry)
 DE R. oryzae CP96001 RCEI11 protein.
 KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KW pulp treatment; RCEI11.
 OS Rhizopus oryzae.
 XX
 XX
 FT Peptide 1..23 Location/Qualifiers
 FT Protein /note= "signal peptide" 24..360
 FT /note= "mature protein"

MO200238754-A1.
 PD 16-MAY-2002.
 PF 12-NOV-2001; 2001WO-JP09858.
 XX
 PR 10-NOV-2000; 2000JP-0343921.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Koga J, Nakane A, Baba Y, Kono T;
 XX
 DR WPI; 2002-471555/50.
 XX
 PT Cellulase preparations containing transconjugant-originated
 PT endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and
 PT improving freeness of paper pulp
 PS
 PS Claim 3; Page 25-27; 36pp; Japanese.
 XX
 CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEI1, RCEI11, MCEI, MCEI1 or PCBI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001/RCEI11 protein.
 XX
 SO Sequence 360 AA;

Query Match 65.9%; Score 1332; DB 23; Length 360;
 Best Local Similarity 66.4%; Pred. No. 3.1e-84;
 Matches 249; Conservative 39; Mismatches 63; Indels 24; Gaps 5;

QY 1 MKPFTTSSALIALALGTEMAAASKSKLYGQCGKDWNGPTCCSGSTC--KVSNDYIS 58
 DB 1 MKPFTTSSALIALALGTEMAAASKSKLYGQCGKDWNGPTCCSGSTCVDYDPAFPYS 60
 QY 59 QCLAPE--SNQKSESESKLYGQCGKDWNGPTCCSGSTCKVSNDYISQCLAPESNGK 116
 DB 61 QCPVEMENLTSTNKS-----HKTFTBSAKTTTTSKSKTTTTEBASKTT 106
 QY 117 TSESATKTTTAPAKETTTAKASNSNSG-----KYSIVSGASGAGVTRRYWDCK 171
 DB 107 TTEASKTTTTEBASKTTTTRKASTSTSSSSSSASTNYSVSGASGAGNETTRRYWDCK 166
 QY 172 ASCSWPGKAVSSPYKSCNKDVTALSDSNVQSGCNGNSYMCNDNQPMVAVNDNLAYGFA 231
 DB 167 PSCSWPGKADVTSTVSGCNKDGKT-LADNNTQNGCVGSSSTYCNQPMVAVSDDLAYGFA 225
 QY 232 AAASGGSESRWCCSCFELTFTSTVAGKKMVIQVNTGDLGSSSTGAHFDLQMPGGGVG 291
 DB 226 AAASGGSEATWCCACFELTFTSTVAGKKMVIQVNTGDLGSSSTGAHFDLQMPGGGVG 285
 QY 292 IFNGGSKQWGPNDGMSRGYGISASDSSLPALQAGCKMRFNFKADNPSTMYKEV 351
 DB 286 IYNGCATQMGAPTDGMAFYGVSSASDSSNLPALQAGCKMRFNFKADNPSTMYKQV 345
 QY 352 TCPKEITAKTGCSRK 366
 DB 346 TCPKAITAKSGCSRK 360

RESULT 13
 AAO15063
 ID AAO15063 standard; protein; 245 AA.
 AC AAO15063;
 DT 22-AUG-2002 (first entry)
 DE Endoglucanase-related recombinant protein 2.
 XX
 KM Zygomycetes-originated endoglucanase; cellulose binding domain;
 KW fibre processing; waste paper de-inking; paper pulp.
 OS Unidentified.
 XX
 PN MO200242474-A1.
 PD 30-MAY-2002.
 PF 21-NOV-2001; 2001WO-JP10188.
 XX
 PR 21-NOV-2000; 2000JP-0354296.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Nakane A, Baba Y, Koga J, Kubota H;
 XX
 DR WPI; 2002-471729/50.
 XX
 PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp
 PS
 PS Example 2; Page 33; 109pp; Japanese.
 XX
 CC The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-

CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

XX Sequence 245 AA;

Query Match 61.0%; Score 1231.5; DB 23; Length 245;

Best Local Similarity 64.8%; Pred. No. 1.7e-77; Indels 121; Gaps 1;

Matches 237; Conservative 1; Mismatches 7; Indels 121; Gaps 1;

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

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PT conditions for production of paper pulp and animal feedstuffs -
 XX Claim 44; Page 120-122; 180pp; Japanese.

XX This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal feedstuffs.

XX Sequence 338 AA;

Query Match 59.5%; Score 1202; DB 21; Length 338;

Best Local Similarity 60.1%; Pred. No. 2.7e-75; Indels 32; Gaps 8;

Matches 221; Conservative 48; Mismatches 67; Indels 32; Gaps 8;

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1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

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1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

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1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

1 MKFTITSSALLALALGTEMASAKSKLYGCGCGKDMNGPTCCSGSTCKVSNDDYSQC 60

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